

**The National Institute of
Environmental Health Sciences
National Institutes of Health**

**Environmental Management System
Manual**

Research Triangle Park, North Carolina



2006
Version 2.0



PURPOSE AND APPLICABILITY

This manual describes the overall approach and structure for the Environmental Management System [EMS] established at the National Institute of Environmental Health Sciences (NIEHS). The EMS manual is maintained by the NIEHS Health and Safety Branch, Office of Management, and is applicable to operations at NIEHS and its associated facilities located in Research Triangle Park, North Carolina. Other NIEHS environmental planning documents have been organized within the framework of the EMS manual, and are part of the overall NIEHS Environmental Management System.

The EMS Manual describes the core elements of the EMS and their interrelationships. It is not the purpose of the EMS Manual to fully document all of the environmental controls in the EMS. The purpose of the EMS Manual is to describe briefly the basic components of the EMS and to provide direction to the relevant documentation (such as plans, SOPs, and instructions).

The ISO 14001 EMS Standard is a continuous feedback management model. Key elements of the standard are:

- Environmental Policy
- Planning
- Implementation and Operation
- Checking and Corrective Action
- Management Review
- Continual Improvement

This EMS manual follows the basic elements of the ISO14001 EMS Standard, and as such, can be used as a basis for self-determination and self-declaration of conformance with that standard.

NIEHS Environmental Management System Manual

Version 2.0

Last Revised: August 1, 2006

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
	PURPOSE AND APPLICABILITY	1
	ACRONYMS	4
1.0	INTRODUCTION	5
1.1	NIEHS	
1.2	Health and Safety Branch	
1.3	NIH Office of Research Facilities Development and Operations	
	Figures:	
	NIEHS Organization	
	Organizational Relationships for Health, Safety and Environment	
	NIEHS / EPA Main Campus	
2.0	SCOPE OF THE ENVIRONMENTAL MANAGEMENT SYSTEM [EMS]	10
2.1	The NIEHS EMS	
2.2	The NIEHS EMS Manual	
3.0	DEFINITIONS	12
4.0	ENVIRONMENTAL MANAGEMENT SYSTEM REQUIREMENTS	13
4.1	GENERAL REQUIREMENTS	13
4.2	ENVIRONMENTAL POLICY	13
4.3	PLANNING	14
4.3.1	Environmental Aspects	
4.3.1.1	Identification and Evaluation of Processes and Activities	
4.3.2	Legal and Other Requirements	
4.3.3	Environmental Objectives and Targets	
4.3.4	Environmental Management Programs	
4.3.4.1	Air Emissions	
4.3.4.2	Drinking Water	
4.3.4.3	Wastewater	
4.3.4.4	Aboveground Storage Tanks	
4.3.4.5	Hazardous Materials	
4.3.4.6	Asbestos	
4.3.4.7	Pesticides	
4.3.4.8	Solid Waste	
4.3.4.9	Hazardous Waste	
4.3.4.10	Radioactive Waste	
4.3.4.11	Medical Waste	
4.3.4.12	Wildlife (Plant and Animal) Resource Stewardship	
4.3.4.13	Transportation Management	
4.3.4.14	Historic and Cultural Resources	
4.3.5	Environmental Management Initiatives	

TABLE OF CONTENTS (CONT)

<u>Section</u>	<u>Title</u>	<u>Page</u>
4.4	IMPLEMENTATION AND OPERATION	30
4.4.1	Structure and Responsibility	
4.4.2	Training, Awareness and Competence	
4.4.3	Communications	
4.4.4	Environmental Management System Documentation	
4.4.5	Document Control	
4.4.6	Operational Control	
4.4.7	Emergency Preparedness and Response	
4.4.7.1	Release / Spill Response	
4.4.7.2	Disaster Preparedness	
4.5	CHECKING AND CORRECTIVE ACTION	34
4.5.1	Monitoring and Measurement	
4.5.2	Evaluation of Compliance	
4.5.3	Non-Conformance, Corrective Action, and Preventive Action	
4.5.4	Records	
4.5.5	Environmental Management System Audit	
4.6	MANAGEMENT REVIEW	37
5.0	REFERENCE DOCUMENTS	38

APPENDICES

Appendix	Description
A	Environmental Policy Statement
B	Environmental Aspect Analyses
C	Training Programs
D	Environmental Management Programs and Environmental Management Initiatives

ACRONYMS

Acronym	Description
ACM	Asbestos Containing Material
AST	Aboveground Storage Tank
BMP	Best Management Practice
CFR	Code of Federal Regulations
CRT	Crisis Response Team
DEP	NIH/ORF Division of Environmental Protection
DHHS	Department of Health and Human Services
DIR/CMB	Division of Intramural Research, Comparative Medicine Branch
DOT	Department of Transportation
EC	Emergency Coordinator
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
HSB	Health and Safety Branch
ICS	Incident Command System
MOU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
NIEHS	National Institute of Environmental Health Sciences
NIH	National Institutes of Health
NRC	Nuclear Regulatory Commission
OM	NIEHS Office of Management
OSHA	Occupational Safety and Health Administration
ORF	NIH Office of Research Facilities Development and Operations
RCRA	Resource Conservation and Recovery Act
RQ	Reportable Quantity
RTP	Research Triangle Park, NC
SPCC	Spill Prevention, Control, and Countermeasures
SOP	Standard Operating Procedure
TSDF	Treatment, Storage, Disposal Facility
WHF	Waste Handling Facility (Building 108)

SECTION 1 – INTRODUCTION

Executive Order 13148 (Greening the Government through Leadership in Environmental Management), requires Federal Agencies to develop effective environmental management systems (EMS). The broad goal of the Executive Order is to integrate environmental accountability into day-to-day decision-making and long term planning.

The Department of Health and Human Services (DHHS) fully supports implementation of the EMS at appropriate facilities of the Department and has developed a Department-wide framework as a guide. Consistent with the DHHS framework, most EMSs follow the structure provided by the ISO 14001 Environmental Management Standard. Facilities determined by the National Institutes of Health (NIH) to be appropriate for developing their own EMS include the NIH main campus in Bethesda Maryland; the National Institute of Environmental Health Sciences (NIEHS) in Research Triangle Park, North Carolina; the Frederick Cancer Research Center in Frederick, Maryland; and the Rocky Mountain Laboratories in Hamilton, Montana.

The NIEHS EMS is being developed by a working group comprised of NIEHS Office of Management (OM) and NIH/ORF staff. The goals of the workgroup include:

- Perform an evaluation of the NIEHS facilities with respect to potential environmental issues and evaluate the environmental systems that had been implemented.
- Develop an EMS, including written documentation that incorporates existing environmental programs at the NIEHS into a framework that follows the DHHS and NIH guidance.

This EMS manual is based on the results of facility evaluations and on documents maintained by the NIEHS. It follows the ISO 14001 Standard for Environmental Management Systems and, as such, can be used as a basis for self-determination and self-declaration of conformance with that standard.

1.1 NIEHS

The NIEHS is one of 27 Institutes and Centers of the NIH, which is a component of the DHHS. The NIEHS is an agency of the Federal government, and has a basic research mission in the biomedical sciences. The Institute's mission is to reduce the burden of human illness by understanding how environmental factors interrelate with human health and human disease. This mission is achieved through multidisciplinary biomedical research programs at laboratories and facilities in Research Triangle Park and at several NIEHS funded centers located throughout the country. The NIEHS is also the headquarters for the National Toxicology Program.

The NIEHS is located on a 509-acre site that was donated to the Federal Government in 1965. The original Master Plan¹ for the site identified six building sites (known as "Centers") around a central lake. Approximately in 1998, the NIEHS donated 134

¹ Master Plan – USPHS Research Park, North Carolina. A.G. Odell Jr. and Associates; Smith, Hinchman and Grylls Associates, Inc. March 15, 1971.

acres to the Environmental Protection Agency (EPA) for a new research facility, leaving the NIEHS with 375 acres.

As described below, the main campus NIEHS building infrastructure consists of a main administrative and laboratory facility and several support service facilities providing a total occupancy of about 1,100 employees/contractors and 1,003,217 gross square feet (GSF).

Building 101 – The Rall Building, Administrative Offices and Laboratories (871,147 GSF) consists of six (6) modules and a connected MRI structure:

- Module A – 4 occupied floors (administrative), including a library and cafeteria
- Module B – 3 occupied floors (administrative), including a conference center
- Modules C, D, E – 4 occupied floors of laboratories and 1 floor for animal facilities
- Module F – 4 occupied floors of laboratory space
- MRI facility – single story structure for magnetic resonance imaging

Construction of Modules A-E was completed about 1981. Module F and the MRI facility were completed and occupied in 1996. In the laboratory modules (C-F), mechanical services are provided to the laboratory and animal floors from interstitial floors above and/or below the occupied floor.

Support Service Facilities are located in a complex of seven (7) buildings on the NIEHS site:

- Building 102 – Engineering and Maintenance shops (30,033 GSF)
- Building 103 – Chemical storage (2,411 GSF)
- Building 104 – Warehouse; Consolidated Computer/Server Facility (24,841 GSF)
- Building 105 – Central utility plant (70,777 GSF)
- Building 106 – Incinerator plant (16,317 GSF)
- Building 107 – Primary electrical switch house (10,890 GSF)
- Building 108 – Waste handling facility (8,265 GSF)

Buildings 105, 106, 107, and 108 also provide support services to the EPA facilities located on the main campus.

Leased Facilities occupied by the NIEHS involve over 104,000 rentable square feet of space located within and near the Research Triangle Park. These facilities are multi-tenant buildings that are serviced and maintained by property management companies.

- 4401 Building, 79 TW Alexander Drive – Offices, Suites 100, 3100, and 3400
- Nottingham Hall, 4505 Emperor Blvd. – Offices, 2nd Floor
- Davis Park Warehouse, 627 Distribution Drive -- Warehouse storage

1.2 HEALTH AND SAFETY BRANCH

The Health and Safety Branch (HSB) provides central technical and administrative services to create and maintain a safe and healthful environment for NIEHS employees, contractors, visitors, and guest workers. An array of programs is administered by the Branch to support the NIEHS biomedical research mission and to ensure compliance with applicable Federal, state and local regulations. The HSB is administratively located within the Office of Management.

The HSB develops and provides programs and services to address chemical, biological, radiation and physical safety; fire protection; emergency preparedness; environmental protection; hazardous waste management; occupational health; employee assistance; workers' compensation; and health and safety training. The HSB

works closely with all Institute divisions, and in particular the Division of Intramural Research, to ensure that research programs – ongoing and planned – can be conducted in ways that protect employees, facilities and the environment.

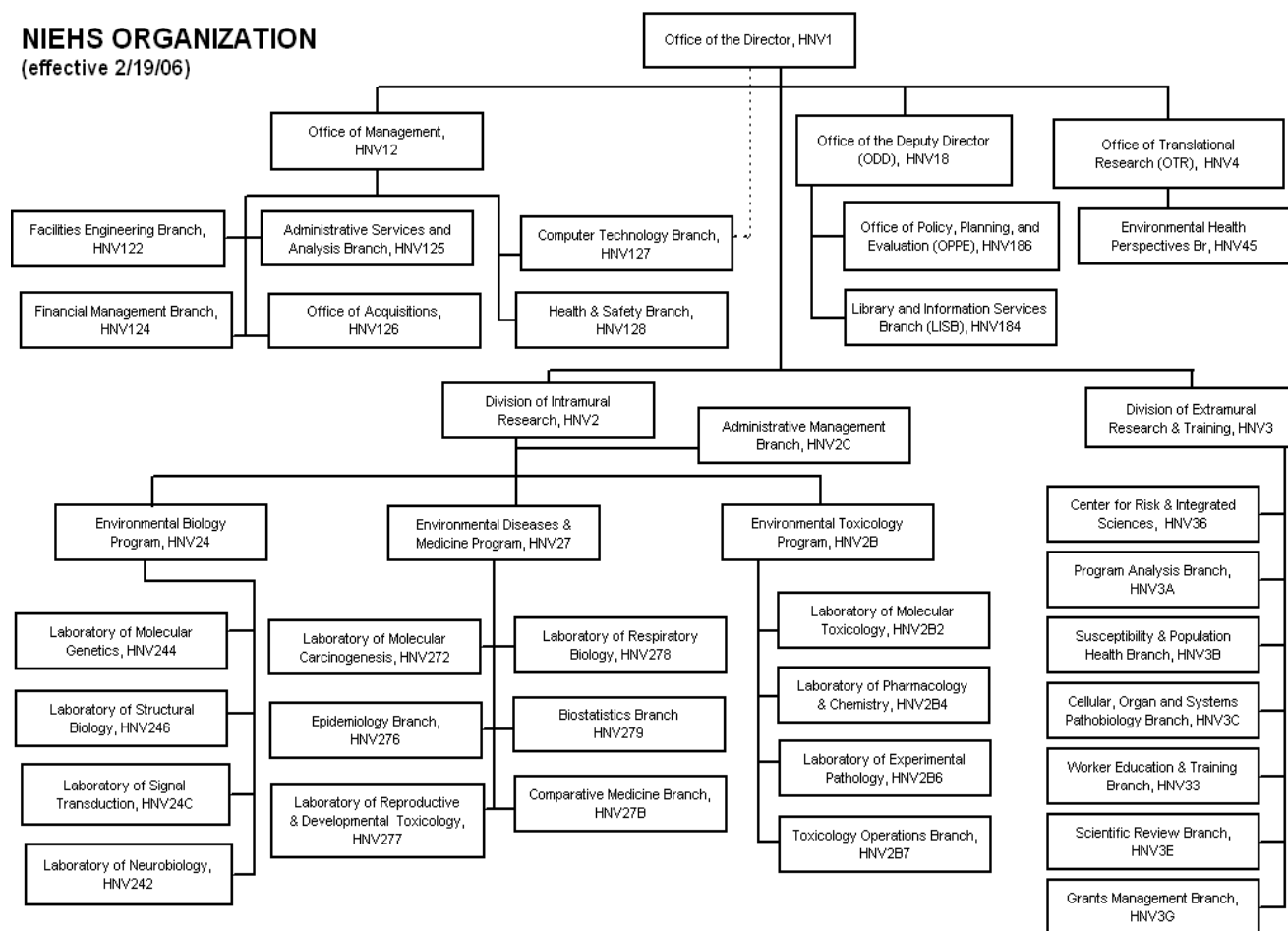
1.3 NIH OFFICE OF RESEARCH FACILITIES DEVELOPMENT AND OPERATIONS

The NIH Office of Research Facilities Development and Operations (ORF) was created in April 2003 to provide a single point of accountability for all NIH facility activities, to streamline information flow, and to facilitate decision making on research and research support facility issues. ORF is responsible for all aspects of facility planning, construction, renovation, and maintenance as well as for protecting the NIH environment.

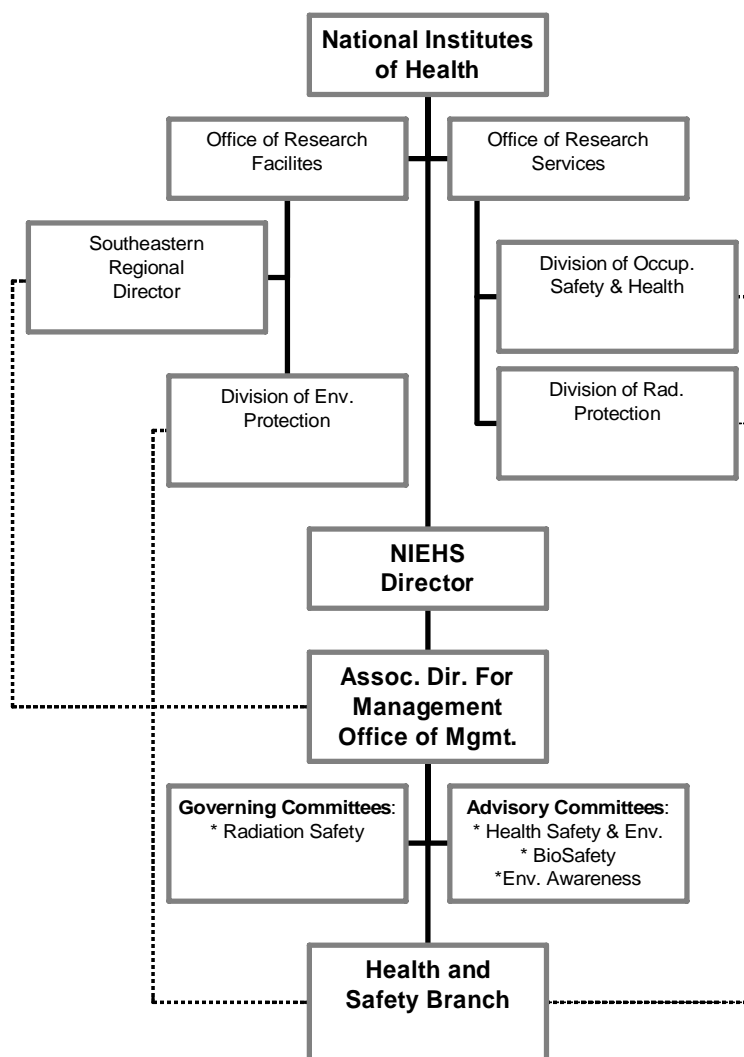
Within ORF, the Division of Environmental Protection (DEP) works to protect and enhance the NIH environment, and is organized into three branches: the Environmental Compliance Branch, the Environmental Quality Branch, and the Waste Resource and Recovery Branch. The Division of Property Management (DPM) oversees the operations, maintenance, repair and renovation of all NIH facilities and utility systems and performs general facility management for all NIH real property.

NIEHS ORGANIZATION

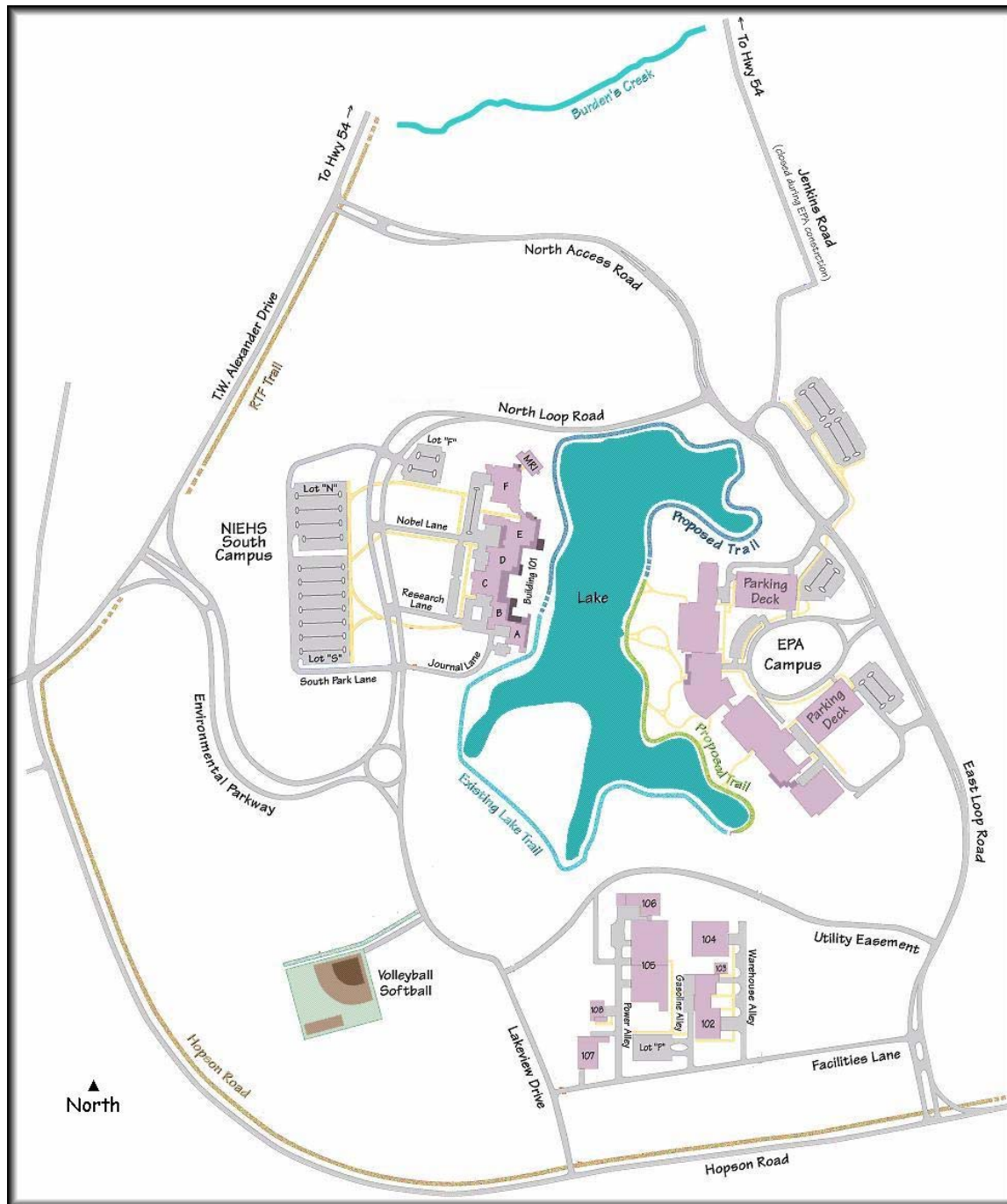
(effective 2/19/06)



Organizational Relationships for Health, Safety and Environmental Issues



NIEHS / EPA Main Campus Site



SECTION 2 – SCOPE OF THE ENVIRONMENTAL MANAGEMENT SYSTEM [EMS]

This manual defines the principal requirements of the NIEHS EMS. Its purpose is to briefly describe the elements of the implemented environmental systems that demonstrate compliance with the International Organization for Standardization (ISO) 14001 standards and to list appropriate references. The complete descriptions of these environmental systems are found in the controlled documents, which are referenced in this manual.

The EMS is designed to cover the environmental aspects that a facility can control and directly manage, as well as those it does not control or directly manage but can be expected to have an influence.

Accordingly, the scope of the NIEHS EMS includes:

- The buildings and grounds located within the 375 acre NIEHS campus (including the support service facilities and the lake)
- The space occupied by NIEHS within its leased facilities as described in Section 1.1.

This EMS does not include the following:

- NIEHS administrative, research, and clinical space located on the NIH campus at Bethesda, Maryland
- NIEHS funded / supported environmental health science centers located at educational and research institutions
- On-campus property / easements controlled by Duke Power in the delivery of high voltage electrical power to Building 107.

2.1 THE NIEHS EMS

The creation and implementation of the NIEHS EMS is required by Executive Order 13148 (see pertinent documents). The EMS, when properly developed and implemented, is a self-correcting and continual improvement system that will help ensure that the NIEHS is in compliance with environmental regulations at all times.

Development of the NIEHS EMS is a five-step process that addresses each of the key elements of the ISO 14001 EMS Standard.

1. *Policy.* The development of an Environmental Policy.
2. *Planning.* The planning step consists of identifying regulatory and other requirements; identifying processes, resources, and significant impacts; identifying pollution prevention opportunities; developing objectives and targets; and creating a planning, programming, and budgeting system.
3. *Implementation.* The implementation step consists of defining the structure, responsibilities, and programs; implementing training; creating the EMS documentation (including document control and record keeping); communicating the EMS to personnel; developing and implementing standard operating procedures [SOPs]; and developing and implementing emergency preparedness and response procedures.

4. *Checking and Correction.* The checking and corrective action step includes monitoring and measuring (internal assessments), problem and cause identification, corrective and preventative action implementation, and an EMS Review.
5. *Management Review.* In the management review step, upper management reviews the EMS, including the results of internal assessments. Modifications to the EMS are made, as necessary, to ensure compliance. Taking into account the results of checking and corrective action (Step Four), the management review is designed to ensure continual improvement of the EMS.

2.2. THE NIEHS EMS MANUAL

The EMS Manual for the NIEHS provides guidance for environmental management to ensure that all areas of the facility comply with planned arrangements, operating procedures and practices. The manual follows the ISO 14001 Standard, and it is reviewed on a regular basis to ensure the adequacy of its contents and to promote continual improvement.

The EMS Manual is made available to all NIEHS personnel via computer network / intranet. The Environmental Compliance Officer has responsibility as the EMS Manual Coordinator and is responsible for all revisions to the manual and for managing external distribution, if necessary. At all times, a hard copy will be retained by the HSB Environmental Program.

The EMS Manual describes the core elements of the EMS and their interrelationships. The purpose of the EMS Manual is to describe briefly the basic components of the EMS and to provide direction to the relevant documentation (such as plans, SOPs, and instructions). The EMS Manual is not intended to fully document all of the environmental controls in the EMS. The EMS Manual closely follows the sections specified in the ISO 14001 Standard. Each section addresses specific aspects of environmental management.

SECTION 3 – DEFINITIONS

The ISO 14001 Standard defines a number of terms that are useful for effective implementation of the standard and for communication concerning the standard. Some of these definitions are provided below, along with the corresponding ISO 14001 sections, where applicable.

Environmental Aspect – An element of an organization's activities, products, or services that can interact with the environment

Environmental Impact – Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products, or services.

Environmental Management System – That part of the overall management system which includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy.

Environmental Objective – An overall environmental goal arising from an organization's environmental policy. Objectives should be quantifiable where practicable.

Environmental Performance – Measurable results of an organization's management of its environmental aspects.

Environmental Target – A detailed performance requirement that is quantified where practicable and that arises from the environmental objectives. Targets must be set and then met for the objectives to be achieved.

Interested Party – An individual or group concerned with or affected by the environmental performance of an organization. These can include regulators, local residents, facility personnel, customers, environmental groups, and the general public.

Significant Environmental Aspect – An environmental aspect that has or could have a significant environmental impact.

External Audit Review – An external review is a systematic, documented, objective, and periodic review of the EMS that may include a compliance review of selected program areas. Designated persons from outside the NIEHS are selected to conduct the assessment.

Internal Review – An internal review is a systematic, documented, objective, and comprehensive review of the EMS conducted by the NIEHS personnel or their designees on an annual basis.

SECTION 4 – ENVIRONMENTAL MANAGEMENT SYSTEM REQUIREMENTS

SECTION 4.1 – GENERAL REQUIREMENTS

The EMS requirements are described in six sections.

<u>Section</u>	<u>Section Title</u>
4.1	General Requirements
4.2	Environmental Policy
4.3	Planning
4.4	Implementation and Operation
4.5	Checking and Corrective Action
4.6	Management Review

SECTION 4.2 – ENVIRONMENTAL POLICY

The initial NIEHS Environmental Policy Statement was reviewed by the NIEHS Executive Committee and approved and signed by the Institute Director on October 28, 2003. The policy has been updated in September, 2005 and includes the signatures of the NIEHS Director and Division Directors. The policy:

- Affirms that environmental stewardship and sustainability are core NIEHS values that are closely aligned with the NIEHS Mission
- Establishes eight general goals and guiding principles
 - Compliance with Environmental Requirements
 - Environmentally Responsible Planning and Design Principles
 - Built Environment
 - Pollution Prevention
 - Hazardous Waste and Toxic Materials
 - Commitment to Environmental Education and Awareness
 - Environmentally Responsible Purchasing Decisions
 - Efficient Use and Conservation of Energy, Water, and Other Resources
- Confirms that the environmental impacts of NIEHS programs will be strategically addressed through an Environmental Management System, involving processes of continual review and improvement.

The current Environmental Policy Statement is presented in Appendix A of this manual.

SECTION 4.3 – PLANNING

Planning the EMS includes four principal sub-requirements.

1. Environmental Aspects
2. Legal and Other Requirements
3. Objectives and Targets
4. Environmental Management Programs

4.3.1 ENVIRONMENTAL ASPECTS

Environmental aspects are the elements of an organization's activities, products or services that can interact with the environment. All potentially relevant environmental aspects and impacts must be identified for each process or activity. The following environmental aspects have been determined to be potentially relevant to NIEHS activities, processes and services:

NIEHS Environmental Aspects
Air Emissions – incinerators, boilers, generators, petroleum storage tanks, vehicle exhaust, lab hoods, dust, outdoor building maintenance activities
Solid Waste – office waste, uncontaminated animal bedding, scrap, paper, plastic; recycled and non-recycled waste
Chemical Waste – spent solvents, used oil, batteries, empty chemical containers, fluorescent bulbs, and unused lab chemicals
Radioactive Waste – radioactive solutions, radioactive contaminated animal carcasses
Medical Waste – sharps, blood products, human and animal tissue, autoclaved materials
Construction Waste – used building materials including drywall, concrete
Soil or Groundwater Contamination – storage tanks, fuel lines, building maintenance, construction vehicles
Toxics Releases – PCBs, asbestos, lead based paint, mercury, pesticides
Wastewater Discharges – to the sanitary sewer with sources including laboratories, photo processing, domestic, cafeteria, glassware cleaning, cagewash operations, utility water treatment, scrubber effluent
Stormwater Releases – Building 108 trench drain, oil/water separators, loading docks, roads and parking lots, roof drains
Electrical Power Consumption – energy use for illumination, instrumentation, motors and equipment
Water Consumption – process and space cooling, irrigation, cleaning and domestic uses
Forest Products (paper, wood) Consumption – program administration, research activities, animal husbandry, and facility maintenance

Fossil Fuels (oil, natural gas, automotive fuels) Consumption – physical plant operations, facility / grounds maintenance, and vehicle fleet operations
Ecological Disturbance – hydrological alteration, vegetation alteration, habitats, wetlands, threatened and endangered species

4.3.1.1 Identification and Evaluation of Processes and Activities for Potential Significant Environmental Impact

The procedures used for identifying environmental aspects and determining significance are based on an evaluation of their potential impact to the environment. Environmental impacts are any changes to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services. Examples of environmental impacts include air pollution, human health effects, groundwater and/or storm sewer contamination, and flora and fauna (plant and animal) health effects.

An inventory of facility processes and activities has been developed to identify all major functions and sub-functions of NIEHS operations. The inventory is updated to include additional processes and activities that arise after initial assessment. The environmental aspects for those facility processes and activities that are regulated by an environmental permit are, by default, considered to be significant. Other environmental aspects that are not currently subject to control by regulatory permit are qualitatively evaluated to determine potential significance. The evaluation is based on physical surveys and inspections, interviews with staff involved with the process / activity, and review of process outputs and records. The optional analysis algorithm presented in Appendix B can also be used to provide an initial assessment of the potential significance of environmental aspects across a wide variety of facility programs.

Environmental aspect analyses have been and will continue to be conducted within each area of the facility where environmental aspects have been identified. Significant environmental aspects of facility processes and activities have been identified in order to establish best management practices (BMPs) and set environmental objectives. The significant environmental aspects are documented with cross-references provided for the control measures or reference procedures designed for pollution prevention or to minimize potential environmental impacts.

An environmental aspect analysis has been completed for each of the Environmental Management Program areas described in Section 4.3.4. Guidance documents, instructions, plans, and SOPs have been developed for these areas in order to properly identify, manage, and respond to each environmental aspect.

The following table lists the current inventory of identified processes and activities that are evaluated for potentially significant environmental aspects.

NIEHS Environmental Management System	
EMS Processes / Activities	
Major Function	Sub-Functions
Animal Husbandry	<p>Animal bedding and feed systems</p> <p>Cage Wash Operations</p> <p>Veterinary care and animal facility operations</p> <p>Necropsy</p> <p>Pest control</p>
Biomedical / Laboratory Research	<p>Bench scale use of chemicals, solvents, buffer solutions, radioisotopes, biological materials</p> <p>Histology</p> <p>Glassware Services</p> <p>Scientific Imaging, Film Photography</p> <p>Scientific Imaging, Other</p> <p>Media Preparation</p> <p>DNA Sequencing – Core Facility</p> <p>Mass spectroscopy</p> <p>Microarray – Core Facility</p>
Building Maintenance	<p>Janitorial / Custodial Services</p> <p>Shop Activities</p> <p>Painting; refinishing</p>
Building Utility Services	<p>High Temperature / Hot Water (Boilers) -- operate, maintain, and repair the boiler plant and HTHW distribution systems</p> <p>Chilled water (Chillers) -- operate, maintain, and repair the chiller plant and chilled water distribution systems</p> <p>Natural Gas - operate, maintain, and repair the buildings' natural gas distribution systems</p> <p>Sanitary sewer systems -- operate, maintain, and repair the buildings' sanitary sewer distribution systems</p> <p>Supply / Exhaust Ventilation</p> <p>Laboratory utilities -- operate, maintain, and repair the buildings' gas distribution systems</p> <p>Fuel Oil Delivery and Storage</p> <p>Storm sewer systems</p> <p>Electrical -- operate, maintain, and repair the buildings' electrical distribution systems</p> <p>Domestic water -- operate, maintain, and repair the buildings' domestic water distribution systems</p> <p>Telecommunications</p>

Cafeteria Services	Food preparation
	Pest control; sanitation
Facility Construction / Renovation	ACM management
	Solid waste disposal
Grounds Maintenance	Maintain lawns
	Pest control
	Remove snow and ice from paved and unpaved surfaces
	Maintain lake
	Provide litter control services
	Plant and maintain ornamental and shade trees, shrub, hedge, flower, and ground cover beds
	Maintain interior plants
Office and Administrative Work	Photocopying / Duplication Services
Transportation	Vehicle Motor Pool
Warehousing	Transportation (e.g., dangerous goods)
	Storage of supplies, dangerous goods, equipment
Waste Management	Incineration -- Uncontrolled
	Incineration -- Controlled
	Hazardous waste (Building 108)
	Waste transportation
	Solid waste recycling and disposal

4.3.2 LEGAL AND OTHER REQUIREMENTS

The environmental legal and regulatory framework under which the NIEHS operates is comprised principally of DHHS, NIH, and NIEHS regulations, guidance, plans, and instructions. In general, these documents incorporate applicable requirements from Federal, State (e.g., North Carolina) and local (e.g., City of Durham and Durham County) statutes and regulations.

The principal regulations and guidance are embodied in the following permits, licenses and agreements:

North Carolina Department of Environment and Natural Resources

- Hazardous Waste Management, RCRA Part B Permit No. NC2750890004
Covers NIEHS and EPA/RTP hazardous waste management
- Air Quality, Air Permit No. 04226R22, Facility ID 05/32/00158
Synthetic Minor under Title V
Covers NIEHS and EPA/RTP emission sources
- NPDES Stormwater, Permit No. NCS000360
- No. 2 Fuel Oil, Certificate of Registration of Oil Terminal Facility
Registration Nos. 320020032 (Building 101), 320020033 (Building 105)

Nuclear Regulatory Commission (Region II)

- Radioactive Materials, Broad Scope License 32-12358-01

Durham County, North Carolina

- Wastewater, Industrial User Pretreatment Permit (IUP) No. DC-007

Memoranda of Understanding between EPA and NIEHS

- Joint Occupancy and Shared Use of the Waste Handling Facility (Building 108), NIEHS / EPA Campus
- Mutual Aid and Coordination of Emergency Responses to Hazardous Material Incidents Occurring on the NIEHS/EPA Main Campus, Research Triangle Park, North Carolina
- Joint Use of the Incineration Plant (Building 106) to Incinerate Chemical, Radioactive, and Medical Waste on the NIEHS / EPA Campus

DHHS, Centers for Disease Control and Prevention

- Laboratory Registration and Select Agent Transfer Program
Registration No. 20021015-965, Certificate of Facility Registration

(Note: Amendments to 42 CFR 72.6 have revised the threshold quantities of select agents that require registration. NIEHS use of select agents currently falls below the threshold quantities.)

The principle Federal regulations applicable to environmental aspects are codified in the Code of Federal Regulations [CFR]. These include the following:

- ◆ 10 CFR Nuclear Regulatory Commission
- ◆ 29 CFR Department of Labor
- ◆ 40 CFR Environmental Protection Agency
- ◆ 49 CFR Department of Transportation

4.3.3 ENVIRONMENTAL OBJECTIVES AND TARGETS

Objectives and targets are identified based on a review and analysis of the potential environmental impacts of the significant aspects for NIEHS activities and processes. Additional objectives and targets are also identified for NIEHS activities associated with its established Environmental Management Programs described in Section 4.3.4. In all cases, objectives must be directly related to achieving the NIEHS Environmental Policy. Objectives and targets are established based on Input from key stakeholders throughout the Institute to define the feasibility, technical approach and alternatives, and relevant performance metrics. Also, individuals and groups are identified to serve as champions for efforts identified as environmental management initiatives.

Environmental targets are set and reviewed on a regular basis, as needed to achieve environmental objectives. Those targets affected by changes in environmental objectives or changes in facility operations are revised as needed. New targets are created as changes in facility operations or conditions mandate the creation of new environmental objectives or the modification of existing objectives.

The currently active environmental objectives and targets for each Environmental Management Program and Initiative are documented in Appendix D of this Manual.

4.3.4 ENVIRONMENTAL MANAGEMENT PROGRAMS

The EMS objectives and targets will typically support one or more of the established Environmental Management Programs at the NIEHS. The specific requirements under each program are codified in a corresponding written plan, procedure, or instruction. These plans, procedures, and instructions are maintained by the OM/HSB Environmental Program and are updated whenever mandated. Documentation is described in this EMS Manual. Some of the key Environmental Management Programs at the NIEHS are:

- ◆ Air Emissions
- ◆ Drinking Water
- ◆ Wastewater
- ◆ Aboveground Storage Tanks for Petroleum and Oil Products
- ◆ Hazardous Materials
- ◆ Asbestos
- ◆ Pesticides
- ◆ Solid Waste
- ◆ Hazardous Waste
- ◆ Radioactive Waste
- ◆ Medical Waste
- ◆ Wildlife (Plant and Animal) Resource Stewardship
- ◆ Transportation

This Section provides a summary description and overview of the NIEHS Environmental Management Programs. The objectives, targets, environmental aspects, operational controls, and responsibilities for each of these programs are listed in Appendix D.

4.3.4.1 Air Emissions

Environmental compliance of the program is the responsibility of the OM/HSB Environmental Program.

DESCRIPTION: This program contains criteria for air emissions and performance standards applied to Federally owned and operated equipment at the NIEHS / EPA campus. It covers fossil-fuel-fired high temperature and hot-water boilers, diesel-powered emergency generators and natural gas fueled multi-purpose incinerators. These standards include monitoring and data collection requirements. Motor vehicle emission control and Volatile Organic Compounds (VOC) management are also addressed.

OVERVIEW: The NIEHS is permitted by the North Carolina Division of Air Quality to operate incinerators, boilers, emergency generators, and wood shop dust control equipment. The air permit requires the quarterly reporting of emissions data and mandates specific operating ranges and limitations for the permitted equipment. Continuous monitoring of incinerator process and pollution control parameters including temperature, differential pressure, pH, and liquid flow is also required. The NIEHS air permit also includes several pieces of equipment that are located within the adjacent EPA research facility since the two facilities are located on contiguous property under the same ownership (i.e., United States Government).

Pertinent Documents:

1. North Carolina Division of Air Quality Permit
2. MOU between the NIEHS and the EPA for Joint Use of the Incineration Plant (Bldg. 106)
3. Quality Assurance Guidelines: Building 106 Incineration Program

4.3.4.2 Drinking Water

Responsibility for the provision of drinking water is with the NIH/ORF facility management. Environmental compliance and sampling of source drinking water is the responsibility of the OM/HSB Environmental Program. The DIR/Comparative Medicine Branch performs bacteriological testing services for the water quality program.

DESCRIPTION: This program is necessary to establish procedures to ensure that all drinking water systems are properly operated and that the water is safe for consumption.

OVERVIEW: Domestic water is provided to NIEHS facilities by the City of Durham. The municipal water supply is required to meet primary and secondary drinking water standards established by the EPA. All water fountains located in Building 101, Modules A - E are equipped with water filtration cartridges designed to remove 99 percent of chlorine, 90 percent of lead, as well as sediment, rust, bad taste and odor. Filtered water is also provided in the hallway break areas located just outside of the Building 101 D and E Module conference rooms and in the F1 and F2 break rooms. Filters are replaced on an annual basis or after 1200 gallons of water usage. Drinking water fountains located in Building 101, F-Module are not filtered as they have been certified lead-free by the manufacturer and were subsequently tested with satisfactory results.

following initial installation. Samples collected from all F-Module water fountains indicated levels of copper and iron that are below EPA drinking water guidelines and non-detectable levels of lead.

Pertinent Documents:

1. EPA National Primary and Secondary Drinking Water Standards

4.3.4.3 Wastewater

The OM/HSB Environmental Program is responsible for monitoring the environmental compliance of the wastewater discharges from NIEHS main campus facilities.

DESCRIPTION: The intent of this program is to reduce the potential for pollutants to enter the sanitary sewer system through effective pretreatment, source reduction, proper chemical disposal, and other wastewater management programs.

OVERVIEW: The NIEHS holds a wastewater discharge permit issued by Durham County, North Carolina. The permit limits the total volume of wastewater discharged by the NIEHS into the sanitary sewer system to 241,000 gallons per day (averaged over a month). The permit also mandates sampling of NIEHS wastewater discharge. Wastewater sampling for mercury is conducted on a monthly basis while sampling for volatile organic compounds, silver, cyanide, pH, temperature, total phosphorus, total nitrogen, ammonia, chloride and oil & grease occurs semiannually. Annual wastewater sampling for molybdenum and total phosphorus is also required.

Mercury The NIEHS is committed to pollution prevention activities associated with reducing potential sources of mercury that could be discharged into the environment. Reducing mercury discharges to the environment is important due to the persistent, bioaccumulative, and toxic nature of this pollutant. Although the mercury reduction program is geared toward preventing mercury from entering NIEHS wastewater discharge, the benefits of a facility wide mercury reduction program will curtail potential discharge into the air, land, and water.

Silver Silver recovery units are located in all eight of the Building 101 photo development darkrooms to recover silver from spent fixer solution prior to discharge into the sanitary sewer system. The equipment configuration for recovering silver involves an electroplating tank in series with a solution transfer tank and two metals exchange cartridges. The Health and Safety Branch maintains the silver recovery units while contract personnel are responsible for equipment repair and silver harvesting. Over the past several years, silver concentrations within NIEHS wastewater have typically been measured at levels near or below the detection limit of 0.002 mg/l.

Pertinent Documents:

1. Durham County Wastewater Discharge Permit

4.3.4.4 Aboveground Storage Tanks (ASTs) for Petroleum and Oil Products

Environmental compliance of the program is the responsibility of the OM/HSB Environmental Program.

DESCRIPTION: The intent of this program is to control and abate pollution resulting from the storage, transportation and distribution of petroleum products.

OVERVIEW: The EPA requires facilities that have over 42,000 gallons of belowground or 1,320 gallons of aboveground petroleum storage capacity to prepare and implement a Spill Prevention Control and Countermeasures (SPCC) Plan. All containers capable of storing 55 gallons or more of petroleum products must be documented within the SPCC Plan. The NIEHS currently has an aboveground storage capacity of 295,000 gallons. This capacity is primarily comprised of fuel oil storage but also includes transformer mineral oil, engine oil, and elevator hydraulic fluid. Therefore, preparation of a SPCC Plan is required. The NIEHS SPCC Plan documents spill potential, prevention, response, and cleanup operations along with procedures for unloading fuel oil during tanker truck deliveries. There are no underground storage tanks located on NIEHS property. ASTs associated with buildings occupied by NIEHS are managed by Facilities Management, NIH/ORF. All ASTs have secondary containment with locked valves leading to an oil water separator, and have appropriate signs.

Pertinent Documents:

1. NIEHS SPCC Plan

4.3.4.5 Hazardous Materials

Environmental compliance of the program is the responsibility of the OM/HSB Environmental Program with additional assistance and oversight by the OM/HSB Industrial Hygiene and Radiation Safety Programs.

DESCRIPTION: The intent of this program is to provide criteria for the safe and environmentally sound storage, handling, transportation and disposition of hazardous materials.

OVERVIEW: The management of hazardous materials is guided by the requirements contained in the NIEHS Health and Safety Manual. The Manual includes chapters addressing the chemical hygiene plan, review and approval of hazardous material protocols, and Hazard Communication Standard (HAZCOM) training.

Pertinent Documents:

1. NIEHS Health and Safety Manual

4.3.4.6 Asbestos

Environmental compliance of the program is the responsibility of the OM/HSB Environmental Program and the Industrial Hygiene Program.

DESCRIPTION: The intent of this program is to control and abate threats to human health from friable asbestos, and to manage asbestos during removal and disposal.

OVERVIEW: Asbestos has been used in over 3,600 commercial and industrial products in the United States. In 1970 asbestos was banned from use in building materials, but is still legal for other applications such as brake shoes, gaskets, and textiles. In 2002-2003, a comprehensive survey was performed of all NIEHS main campus mechanical systems and spaces. Limited amounts of asbestos containing materials (ACM) were identified in several locations, primarily associated with mastic compounds used on piping and air distribution systems. The disturbance of ACM can potentially release fibers into the air during routine maintenance, repair and renovation activities involving these systems. The NIEHS has implemented an Asbestos Operations and Maintenance (O&M) Plan that requires periodic facility re-surveys,

asbestos awareness training, project review and specific safety procedures for all demolition and renovation activities involving ACM.

Pertinent Documents:

1. NIEHS Asbestos Operations and Maintenance Plan
2. NIEHS Health & Safety Manual

4.3.4.7 Pesticides

The policies and procedures for pest management are the responsibility of the DIR/CMB. The OM/HSB Environmental Program provides environmental compliance oversight of the program.

DESCRIPTION: The intent of this program is to enhance environmental protection and provide for employee health and safety by controlling the handling, use, and storage of pesticides.

OVERVIEW: Pesticides are particularly harmful to the environment because of their toxic effects upon organisms, especially aquatic organisms, even in small quantities. The term "pesticides" refers to chemical substances used to kill "pests" and includes insecticides, rodenticides, fungicides, and herbicides. The United States law governing the use of pest control substances is the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). FIFRA mandates strict control of pesticide storage and use as well as disposal of pesticide waste.

Pertinent Documents:

1. NIEHS Health & Safety Manual
2. CMB Pest Control Program

4.3.4.8 Solid Waste

Environmental compliance of the program is the responsibility of the OM/HSB - Environmental Program. Responsibility for non-hazardous solid waste disposal at NIEHS resides with facility management, NIH/ORF. Environmental compliance of the internal solid waste operations, including appropriate participation in waste reduction and recycling programs, is the responsibility of the OM/ASB Resource Conservation Specialist and OM/HSB Environmental Compliance Specialist.

DESCRIPTION: The intent of this program is to ensure that solid wastes are identified, classified, collected, transported, stored, treated and disposed of safely and in a manner protective of human health and the environment. This program includes all non-hazardous solid wastes generated by the NIEHS at its Research Triangle Park facilities in North Carolina.

OVERVIEW: Currently, a North Carolina solid waste permit is not required for the NIEHS since the incineration plant is a non-commercial operation and waste is not accepted from offsite locations unaffiliated with the federal government. Incinerator bottom ash, renovation/demolition debris, and other materials are routinely evaluated for hazardous content prior to offsite disposal at a solid waste landfill. In addition, opportunities for recycling and reuse of materials slated for disposal as solid waste are examined by the Resource Conservation Specialist in an effort to reduce the overall volume of NIEHS waste. A Recycling Guide has been produced and distributed to all NIEHS personnel to encourage participation.

Pertinent Documents:

1. NIEHS Waste Manual
2. NIEHS Recycling Guide

4.3.4.9 Hazardous Waste

Environmental compliance of the program is the responsibility of the OM/HSB Hazardous Waste Management Program.

DESCRIPTION: This program provides for the sound management of hazardous wastes (HW) to ensure that such wastes are identified, accumulated, stored, transported, treated, and disposed or recycled in an environmentally sound manner. The program also provides for the tracking of HW from generation to ultimate disposal.

OVERVIEW: The NIEHS generates a wide variety of RCRA listed hazardous waste materials and other non-listed chemical waste materials, all in relatively small quantities. It is NIEHS policy that all solid and liquid chemical waste material, listed or otherwise, be disposed of through the Hazardous Waste Management Program. All NIEHS materials are classified as hazardous or non-hazardous waste after being segregated and inventoried in the designated marshaling area of Building 108. Management options for hazardous and non-hazardous wastes include recycling, reuse, and/or off-site treatment/disposal. The NIEHS currently employs these and other pollution prevention techniques as a means of waste minimization.

The Waste Handling Facility (WHF), NIEHS Building 108, is used for receiving; handling, packaging, and storing hazardous waste. These types of waste materials typically include bases, oxidizers, acids, flammables, and poisons/dioxins. The WHF is equipped with all necessary safety and environmental features for this type of facility, including emergency showers, eye washes, spill containment dikes, grated floors, and segregated storage areas. The WHF was expanded to accommodate EPA needs for hazardous waste management upon occupancy of its new facilities on the NIEHS / EPA campus. The WHF is permitted as an RCRA Part B Treatment, Storage, and Disposal Facility (TSDF) by the North Carolina Department of Environment and Natural Resources (DENR). The NIEHS and the EPA are listed as “co-operators” on the permit. The permit covers all waste management activities within the WHF and Buildings A and E (Rooms A-167A, A-186A and E-178D) of the EPA facility.

Pertinent Documents:

1. Hazardous Waste Permit
2. RCRA Contingency Plan
3. MOU between the NIEHS and the EPA for Joint Occupancy and Shared Use of the Waste Handling Facility (Bldg. 108)

4.3.4.10 Radioactive Waste

Environmental compliance of the program is the responsibility of the OM/HSB Hazardous Waste Management Program and the OM/HSB Radiation Safety Program.

DESCRIPTION: This program provides for the sound management of radioactive wastes to ensure that radioactive wastes are identified, accumulated, stored, transported, treated, and disposed in an environmentally sound manner. The program also provides for the tracking of radioactive waste from generation to ultimate disposal.

OVERVIEW: The NIEHS generates a variety of liquid and solid radioactive wastes, all with limited radioactivity and in relatively small quantities. It is NIEHS policy that all solid and liquid radioactive waste material is disposed of through the Hazardous Waste Management Program. Radioactive wastes may also contain chemicals that require it to be managed as listed hazardous waste. The Waste Handling Facility (WHF), NIEHS Building 108, is used for receiving; handling, packaging, and storing radioactive waste. All NIEHS materials are appropriately classified and managed accordingly after being segregated and inventoried in the designated marshalling area of Building 108. Management options for radioactive wastes include on-site decay-in-storage, drain disposal, on-site incineration, and off-site treatment/disposal. Decay-in-storage is the primary on-site management approach for radioactive and mixed-radioactive wastes involving short half-life isotopes (e.g., ³²P). The NIEHS encourages pollution prevention techniques as a means of waste minimization.

4.3.4.11 Medical Waste

Environmental compliance for medical waste management is the responsibility of the OM/HSB - Environmental Program.

DESCRIPTION: The intent of this program is the safe and environmentally sound management and disposal of pathological, biological, and infectious materials and wastes generated by NIEHS, and associated on-site clinical research programs.

OVERVIEW: The North Carolina Division of Air Quality (NCDAQ) air permit limits medical waste incineration to ten percent of the total weight of all waste types incinerated in each incinerator per calendar quarter. Adherence to this limitation allows the NIEHS / EPA campus incinerators to avoid classification as hospital, medical, and infectious waste incinerators (HMIWI). The NIEHS complies with this limitation through recordkeeping of the weights of waste types treated by all three incinerators. Medical waste is defined as, "any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals."

Pertinent Documents:

1. NIEHS Waste Manual
2. North Carolina Division of Air Quality Permit
3. MOU between the NIEHS and the EPA for Joint Use of the Incineration Plant (Bldg. 106)
4. Quality Assurance Guidelines: Building 106 Incineration Program

4.3.4.12 Wildlife (Plant and Animal) Resource Stewardship

Environmental compliance aspects of this program are the responsibility of the NIH/ORF and the OM/HSB Environmental Compliance Program.

DESCRIPTION: The intent of this program is to preserve natural resources and to manage, protect, and enhance wildlife habitat on the NIEHS campus.

OVERVIEW: All National Environmental Policy Act (NEPA) reviews to determine natural resource impacts at the NIEHS Main Campus are conducted by the NIH/ORF with assistance from the OM/HSB. These reviews are conducted to determine the impact that construction projects may have on natural resources such as forest and vegetation cover, lakes and streams, along with wildlife habitat and the potential existence of endangered species. In addition, the NIEHS has received a Wildlife and Industry Together (WAIT) certification from the North Carolina Wildlife Federation.

Certification requires the development of an employee education and awareness program and other activities to manage, protect, and promote onsite wildlife.

Pertinent Documents:

1. NEPA NIH Review Process
2. Chapter 30, DHHS General Administrative Manual
3. WAIT certification

4.3.4.13 Transportation Management

Environmental compliance aspects of this program are the responsibility of the NIEHS/OM/ASAB.

DESCRIPTION: The intent of this program is to encourage and support transit option (bus, carpool, telework, etc.) to the single occupancy vehicle (SOV).

OVERVIEW: The encouragement of options to the SOV has numerous benefits. Among them are reduced air pollution, decreased highway congestion, energy savings, decreased capital expenditures for parking lot maintenance and repair, and increased employee satisfaction and motivation through the resulting transportation savings. Reduction in community air pollution improves human health, as well as benefits all non-human species. Promotion of optional transit helps us meet Presidential and departmental directives, and even leads to greater highway safety through less highway congestion. Telework is a proven approach to the modern workplace, not only saving fuel and time, but increasing workers satisfaction and productivity too.

Pertinent Documents:

1. Commuter Transit Subsidy Benefit Program Directive - DR4080-811-04 (PDF)
2. Management Directive MD 3070.2

4.3.4.14 Historic and Cultural Resources

Environmental compliance of this program is the responsibility of the OM/HSB Environmental Program and the NIH/ORF.

DESCRIPTION: The intent of this program is to preserve historic and cultural resources that may be located on the NIEHS campus in the event that artifacts are revealed during land disturbing activities.

OVERVIEW: There are no known historic or cultural resources of archaeological significance located on the NIEHS campus. This determination was made following a detailed archaeological survey conducted by the University of North Carolina prior to site development and construction of the NIEHS campus. However, the North Carolina State Historic Preservation Office is to be contacted in the event that any artifacts are discovered during land-disturbing activities. Construction activities would be suspended until clearance is given by the State Historic Preservation Office.

4.3.5 ENVIRONMENTAL MANAGEMENT INITIATIVES

When environmental objectives, targets, and action plans are established that are focused on a specific element of a broader Environmental Management Program, they are documented and tracked as an Environmental Management Initiative. For example, hazardous waste management is an NIEHS Environmental Management Program that encompasses a multitude of activities and associated controls ranging from waste generation to ultimate treatment and disposal. Under this Program, specific

Environmental Management Initiatives may be established focusing on the minimization of a specific waste stream or some other improvement objective.

An Environmental Management Initiative may also be established for projects that involve or have effects across multiple Environmental Management Programs at the Institute.

The following form is used to guide efforts in identifying and tracking the objectives, targets, action plans, responsible parties, and operational controls associated with Environmental Management Initiatives:

ENVIRONMENTAL MANAGEMENT INITIATIVE		
1. Initiative Name:		1.a. Environmental Management Program(s) Supported:
2. Initiative Lead:	3. Document Control Code:	4. Date:
5. Initiative Description:		
6. GOALS AND OBJECTIVES		
2006 Objective(s):	Performance Indicator(s)	Resource requirements
▪	▪	▪
▪	▪	▪
7. Significant Environmental Aspect(s):		
8. Reason(s) for Significance:		
a.		
b.		
c.		
9. Legal and Other Requirements:		
10. Potential Environmental Impacts:		

11. ACTION PLAN:					
Targets/Milestones to Meet Initiative Objective(s)		Status	Timeframe	Responsibility	
		<input type="checkbox"/> Completed			
		<input type="checkbox"/> Completed			
		<input type="checkbox"/> Completed			
		<input type="checkbox"/> Completed			
12. OPERATIONAL CONTROLS					
Activity	Controls	Responsible Persons	Monitoring	Records	Comments
13. RELEVANT DOCUMENT(S)					
Document Name		Location		Document Custodian	
14. EMS REVIEW					
Name:		Signature:		Date:	

SECTION 4.4 – IMPLEMENTATION AND OPERATION

4.4.1 STRUCTURE AND RESPONSIBILITY

The organizational structure of the NIEHS is presented in Section 1 of this EMS Manual. The overall coordination of the EMS at the Institute is provided by the EMS Working Group, who together with the Health and Safety Branch has the following roles and responsibilities.

- ◆ To ensure that the EMS requirements are established, implemented, and maintained in accordance with EO 13148 and other DHHS and NIH guidance.
- ◆ To report on the performance of the EMS to senior management for review and as a basis for improvement of the EMS.
- ◆ To conduct annual internal assessments to determine environmental compliance of each program.

The EMS Working Group is comprised of representatives from the HSB, NIH/ORF, and the Environmental Awareness Advisory Committee. As needed, the working group solicits the participation, input, and assistance from other program areas within the Institute to ensure broad involvement and awareness of the NIEHS environmental management initiatives and programs.

Individual responsibilities are specifically stated in the plans, procedures, or instructions for each Environmental Management Program. Defined in these documents are the relevant roles, responsibilities, and authorities. The availability of HSB training programs and pertinent documents to NIEHS staff and on-site contractor personnel ensure that these roles, responsibilities, and authorities are clearly communicated.

NIEHS Director – The Director has overall responsibility for ensuring an effective EMS is in place at the Institute.

Leadership Council – The Leadership Council (including, among others, the Director, the Deputy Director, the Associate Director for Management, and Division Directors) provides executive level direction and decision-making.

Supervisors – Supervisors are assigned specific functions and responsibilities under each Program area.

Employees – Non-supervisory personnel are required to adhere to procedures and policies established under each Program area.

4.4.2 TRAINING, AWARENESS AND COMPETENCE

The NIEHS identifies, plans, monitors and records training needs for personnel whose work activities may involve a significant aspect and environmental impact. The NIEHS has established programs and procedures to train employees at each relevant function and level so they are aware of the environmental policy, significant environmental aspects, and their roles and responsibilities within all relevant Environmental Management Programs. Appendix C lists the health, safety and environmental training programs provided at the NIEHS, including the content, frequency, and types of positions that are required to complete the training.

The HSB maintains records of employee training for health, safety and environmental compliance topics within the NIEHS Occupational Health and Safety Information System database. Appropriate records are monitored and reviewed on a scheduled basis to ensure currency. Competency is determined by the employee's supervisor.

On-site contractors are required by the contract to provide their employees with the equivalent level of training. This is accomplished by attending the NIEHS training courses, instruction by project officers and project managers, or by contractor provided training.

4.4.3 COMMUNICATIONS

The NIEHS Public Affairs Program is designed to conform to the public's right to be fully informed with accurate and timely information, consistent with DHHS and NIH requirements for security and personal safety and privacy. The NIEHS Office of Communication and Public Liaison coordinates and establishes policy and procedures for communication with external organizations.

Environmental disclosures to external communities occur through annual EPCRA TIER I & II reporting, public hearings on permits, and compliance records available through the EPA Enforcement and Compliance History Online (ECHO) system website. The HSB provides publicly accessible information on the Branch web pages, including historical and current environmental performance data.

In addition, the NIEHS has been recognized as an Environmental Partner in the North Carolina Environmental Stewardship Initiative (ESI). This voluntary initiative encourages participant organizations to develop and achieve environmental goals beyond the basic compliance requirements associated with permit stipulations and regulations. The NIEHS, as an Environmental Partner, is required to submit an annual report that documents actions taken to achieve these environmental goals. The annual ESI report is maintained in the State of North Carolina public files for viewing by all interested parties.

Internal communication at the NIEHS follows the organizational structure outlined in the Organizational Charts included in Section 1 of this EMS Manual.

4.4.4 ENVIRONMENTAL MANAGEMENT SYSTEM DOCUMENTATION

The EMS Manual, maintained in both electronic and hard copy, describes the overall documentation of the NIEHS EMS. The EMS Manual describes the core elements of the EMS and their interrelationships. The EMS Manual is not intended to fully document all of the specific environmental controls in the EMS. Rather, the purpose of the EMS Manual is to briefly describe the basic components of the EMS and to provide direction to the relevant and more specific documentation (such as plans, SOPs, and instructions).

A listing of pertinent documents is included in Section 5 of the EMS Manual. Master copies of the actual documents are maintained by the Health and Safety Branch. The primary documents containing instruction and guidance relating to environmental practices include the following.

Manuals and Guides

1. NIEHS Health and Safety Manual - multiple chapters including:
 - ◆ Chemical Hygiene Plan
 - ◆ Occupant Emergency Plan
 - ◆ Personnel Protection Policies
 - ◆ General Safety and Laboratory Policies
 - ◆ Hazardous Chemical and Flammable Solvents
 - ◆ Environmental Management
 - ◆ Biohazard Safety
 - ◆ Animal Facilities
 - ◆ Facilities Operations
 - ◆ Asbestos Management Program
2. NIEHS Radiation Safety Guide
3. NIEHS Waste Manual
4. Guidance for Managing the Response to Critical Incidents

Environmental Management Program Plans

1. RCRA Contingency Plan
2. Spill Prevention Control and Countermeasures (SPCC) Plan
3. Stormwater Pollution Prevention Plan
4. Quality Assurance Guidelines – Building 106 Incinerators
5. Mercury Reduction Program
6. Pest Control Program
7. Waste Minimization Program
8. Incident Command System

4.4.5 DOCUMENT CONTROL

The NIEHS maintains a policy of document control. Control procedures include the following.

- A. Environmental documents are maintained in a central location that is accessible to all personnel. This designated location is the OM/HSB Environmental Program offices. Electronic documentation is also available on the Intranet, which is read-only and can only be altered by authorized HSB staff.
- B. Environmental documents are periodically reviewed, revised whenever deemed necessary, and approved by authorized personnel following each revision.
- C. Copies of those environmental documents needed at locations other than the Environmental Program office are maintained at those locations.
- D. Upon revision of environmental documents, obsolete versions are removed and replaced with current versions.
- E. All obsolete versions that are retained for filing purposes are duly marked as obsolete.
- F. Documents, other than environmental documents, that contain procedures with environmental aspects are maintained at designated locations within those affected program offices.

Document control practices and procedures for the NIH and NIEHS are prescribed by NIH Manual Chapter 1744, "NIH Vital Records Program". This chapter covers specific categories of records, including emergency planning documents.

4.4.6 OPERATIONAL CONTROL

The processes and activities conducted at the NIEHS that are associated with significant environmental aspects have been identified as described in Section 4.3. These processes and activities are monitored to ensure conformance with the specific guidelines, plans, and instructions that have been established to control environmental performance. In general, operational controls can include engineering technology and administrative / work practice procedures. They are established and maintained by:

- A. Documenting SOPs to cover situations where incidents or non-conformances could lead to deviations from the Environmental Policy, Objectives, and Targets.
- B. Stipulating operating criteria in the procedures developed to operate and maintain equipment (e.g., air emission controls for the pathological incinerator) or to perform certain activities (e.g., hazardous agent protocols for laboratory research).
- C. Establishing and maintaining procedures related to hazardous materials used at the NIEHS and communicating relevant procedures and requirements to personnel and contractors.

A list of relevant plans, SOPs, and guidance documents is shown at Section 5 (Reference Documents) of this EMS Manual. The operational controls associated with established Environmental Management Programs and Initiatives are listed in Appendix D.

4.4.7 EMERGENCY PREPAREDNESS AND RESPONSE

Unplanned releases or spills of hazardous materials and hazardous substances have the potential to threaten the health and safety of visitors and employees, as well as the surrounding community. In addition, such releases or spills can pose a threat to the environment. Employees must be familiar with potential hazards and the proper response actions to be taken in the event of a hazardous material release. Specific emergency procedures for spills or leaks, including initial reaction, cleanup and reporting, are identified in the appropriate documents, including the Emergency Occupant Plan, Critical Incident Response Guide, the RCRA Contingency Plan, and the SPCC Plan.

4.4.7.1 Release/Spill Response

In the event of a hazardous material spill, the HSB is immediately notified. Local community and State emergency management assistance is summoned for a major spill involving a material volume or toxicity beyond the response capabilities of the NIEHS Hazmat Response Team. Any event involving broad institutional impacts would trigger activation of a pre-defined Crisis Response Team that would address continuity of operations and recovery issues. Minor or non-toxic spills are contained and cleaned up by laboratory or facility personnel.

The NIEHS Hazmat Response Team is trained and capable of managing moderate sized events (e.g., typically 55 gallons or less) that would require no more than level B, non-encapsulating protective clothing ensemble. Spill response actions are governed

by an Incident Command System for assignment of roles and responsibilities. The NIEHS and the EPA at RTP have entered into a Memorandum of Understanding (MOU) for mutual aid and combined spill response regarding a release impacting any of the common or shared facilities and areas on the Main Campus (e.g., Buildings 106 and 108).

Pertinent Documents:

1. RCRA Contingency Plan
2. MOU Mutual Aid and Coordination of Emergency Responses to Hazardous Material Incidents Occurring on the NIEHS/EPA Main Campus, Research Triangle Park, North Carolina
3. NIEHS Emergency Occupant Plan
4. NIEHS Incident Command System / Worksheets
5. NIEHS SPCC Plan

4.4.7.2 Disaster Preparedness

The NIEHS has developed an emergency management plan to provide guidance for initiating and managing the response to critical incidents that may significantly impact NIEHS facilities and occupants. The plan provides an overview of the structure for decision-making and the mobilization of resources within NIEHS to respond to campus-wide or regional emergencies and/or disasters. Specific contingency and action plans have been developed for a variety of emergency situations, for example, hazardous material release, fire, electrical power failure, civil disorder, and severe weather. As appropriate, these specific action plans and other contingency plans are used to guide response actions and to establish continuity of operations.

Critical incidents occur outside the normal course of routine activities and include both natural events (tornadoes, floods, hurricanes) and man-made events (terrorist attack, explosion, bombing). A critical incident is an event or situation that threatens human life, health, or safety and requires swift, decisive action involving multiple components to protect lives and property.

In the event of a situation where a NIEHS facility is involved in an emergency, the NIEHS Emergency Coordinator (EC) activates the Crisis Response Team (CRT). The NIEHS CRT is comprised of the Leadership Team, Support Team and Functional Team. Depending on need, Emergency Response Support Teams (e.g., Hazardous Material Responders, Medical First Responders, Utility Control Team, etc.) may be activated for any potential or actual disaster in order to make assessments or take first responder actions to minimize or control the effects of the disaster. These teams may also be involved in actions to initiate recovery efforts following a disaster or emergency.

Pertinent Documents:

1. Guidance for Managing the Response to Critical Incidents Impacting NIEHS Facilities
2. Animal Facility Disaster Preparedness Plan

SECTION 4.5 – CHECKING AND CORRECTIVE ACTION

4.5.1 MONITORING AND MEASUREMENT

The NIEHS has established and continues to maintain procedures for monitoring and measuring those activities that could have a significant impact on the environment.

The NIEHS monitoring of each of the Environmental Management Programs is performed under the direction of the Environmental Program Compliance Specialist.

Instrumentation and equipment used for monitoring environmental parameters are maintained and calibrated at regularly defined intervals, in accordance with written quality assurance guidelines, permit conditions, and manufacturer's recommendations.

Measurable performance indicators and monitoring methods are identified for the goals and operational controls established under each Environmental Management Program and Environmental Management Initiative (see Appendix D).

4.5.2 EVALUATION OF COMPLIANCE

The NIEHS Environmental Program is responsible for conducting environmental compliance evaluations at established intervals throughout the year. The HSB Environmental Program Compliance Specialist maintains a documented schedule for conducting facility compliance checks and reviews. The reviews include visual inspections, verification that monitoring data are being properly recorded, and the collection of environmental samples for analysis.

Compliance is also evaluated through periodic facility surveys conducted by the NIH/DEP and regularly conducted compliance inspections by Federal, State and County regulatory officials.

4.5.3 NON-CONFORMANCE, CORRECTIVE ACTION, AND PREVENTIVE ACTION

The NIEHS has established measures for dealing with the issue of non-conformance with the EMS and for taking corrective and preventative actions. These measures include the following elements.

- ◆ Identifying non-conformances with the EMS (discrepancies and findings).
- ◆ Taking corrective actions for handling the non-conformance in order to mitigate potential environmental effects.
- ◆ Investigating the cause of the non-conformance.
- ◆ Taking preventative actions for ensuring that the non-conformance is not repeated.
- ◆ Documenting the non-conformance, corrective actions, and preventative actions.
- ◆ Design a plan of action to correct the cause of the non-conformance.
- ◆ Revise SOPs, instructions, plans, and any other documents, if warranted.
- ◆ Update the EMS to reflect any significant changes, as warranted.

The identification of non-conformances (discrepancies and findings) can be made during routine inspections or following external and internal environmental audits and assessments.

4.5.4 RECORDS

Records are maintained in all areas of environmental responsibility to demonstrate and document compliance with regulations and effective operations. Each organizational unit (e.g., Division, Office, Branch, Laboratory, etc.) establishes and maintains documentation for the identification, maintenance, and handling of all records pertinent to their area. These records include training and the results of audits and reviews.

The Environmental Program retains copies of EMS Audit results for the Institute. Additionally, documents regarding cradle-to-grave hazardous and medical waste disposal are maintained by the HSB Hazardous Waste Management Program. All environmental records are legible, identifiable and traceable to the activity, product, or service involved. The records are stored and maintained in such a way that they are readily retrievable and protected against damage, deterioration, and loss. Additional records are maintained in the Occupational Health and Safety Information System database.

The retention times for each record are established in accordance with both regulatory minimum requirements and Federal record retention policy. Environmental records generated as a requirement of regulations have retention times set that at least meet the minimum time specified by the regulation. Records that are deemed useful for protecting future liability have commensurately longer retention times than those specified by regulation. The determination of retention times is made by the Environmental Program.

Record retention guidance and requirements for the NIH and NIEHS are prescribed by NIH Manual Chapter 1743, "Keeping and Destroying Records". This chapter addresses specific record categories, including environmental protection, waste management, emergency planning, and employee health and safety.

4.5.5 ENVIRONMENTAL MANAGEMENT SYSTEM AUDIT

Audits of the EMS are conducted through external and internal reviews. Findings and recommendations resulting from the audits are tracked and provide the means for implementing corrective actions for non-conformances discovered during an audit. The results of the EMS audits and reviews are documented in written reports that are submitted to the senior Institute leadership. The basic types of audits conducted are: self-declaration audits, annual internal EMS audits, and environmental compliance audits.

The purpose of the initial NIEHS EMS audit is to verify that the EMS is fully implemented and in conformance with the requirements of EO 13148. The audit procedure meets the requirements in the NIH Self-Declaration Protocol (November 30, 2004). An external third party audit resulting in registration to the ISO 14001 standard is not required for self-declaration. The NIEHS will conduct a self-declaration audit of its EMS a minimum of every three years.

In addition to the self-declaration audits, internal first party audits will be conducted on an annual basis by the NIEHS Environmental Program. Self-declaration during the years that a self-declaration audit is not conducted will be based on the internal audit. The purpose of these audits is to confirm that all elements of the EMS continue to function properly and to assess progress in meeting environmental objectives and targets.

The Environmental Program has prepared an environmental compliance audit checklist outlining the components of a self-audit facility review.

Pertinent Documents:

1. EMS Audit Procedures Document (under development)

SECTION 4.6 – MANAGEMENT REVIEW

As part of the annual review, the NIEHS performs an EMS assessment. Specifications concerning the review are provided in an environmental compliance audit checklist. The annual review is conducted by the NIEHS EMS Management Review Team, which is responsible for establishing the review timeframe and conducting the EMS review. The EMS review evaluates the thoroughness and effectiveness of inspections, compliance evaluations, as well as the policies, SOPs, and environmental improvement initiatives developed as a part of the EMS. Necessary changes will be made to reflect newly identified facilities, changes in inspection and compliance evaluation frequencies, new policies, SOPs, or regulatory requirements. The EMS review will determine what needs to be done to improve the overall Environmental Program. This review is an important step in continual improvement of the EMS.

Based on the EMS review, the Environmental Policy, Environmental Objectives, and other elements of the EMS are reevaluated. Where appropriate, changes are made. Changes in policy and/or objectives provide a basis for establishing new environmental targets, modifying existing targets, or eliminating certain targets as needed.

SECTION 5 – REFERENCE DOCUMENTS

General Documents:

Environmental Management Systems Primer for Federal Facilities: Office of Environmental Policy & Assistance, US Dept. of Energy [DOE/EH-0573], 1998

Environmental Management Systems – Specification with Guidance for Use, ANSI/ISO 14001-2004

Executive Order 13148 Greening the Government Through Leadership in Environmental Management, 21 April 2000

NIEHS Documents:

Animal Facility Disaster Preparedness Plan, Comparative Medicine Branch, Division of Intramural Research, NIEHS

Asbestos Operations and Maintenance Plan, Health and Safety Branch, Office of Management, NIEHS.

Guidance for Managing the Response to Critical Incidents Impacting NIEHS Facilities

Health and Safety Manual, Health and Safety Branch, Office of Management, NIEHS

Incident Command System, NIEHS Emergency Response Plans

Mercury Reduction Program, Health and Safety Branch, Office of Management, NIEHS

MOU - Joint Occupancy and Shared Use of the Waste Handling Facility (Building 108), NIEHS / EPA Campus, 2003

MOU - Mutual Aid and Coordination of Emergency Responses to Hazardous Material Incidents Occurring on the NIEHS/EPA Main Campus, Research Triangle Park, North Carolina, 2005

MOU - Joint Use of the Incineration Plant (Building 106) to Incinerate Chemical, Radioactive, and Medical Waste on the NIEHS / EPA Campus, 2005

Occupant Emergency Plan, Chapter 2 in the Health and Safety Manual, Health and Safety Branch, Office of Management, NIEHS.

Pest Control Program, Comparative Medicine Branch, Division of Intramural Research, NIEHS

Quality Assurance Guidelines – Building 106 Incinerators, Health and Safety Branch, Office of Management, NIEHS

Radiation Safety Guide, Health and Safety Branch, Office of Management, NIEHS

Spill Prevention, Control and Countermeasures Plan, Health and Safety Branch, Office of Management, NIEHS

Stormwater Pollution Prevention Plan, Health and Safety Branch, Office of Management, NIEHS

Waste Manual, Health and Safety Branch, Office of Management, NIEHS

Waste Minimization Plan, Health and Safety Branch, Office of Management, NIEHS

Regulatory Permits and Licenses:

North Carolina Department of Environment and Natural Resources

Hazardous Waste Management, RCRA Part B Permit No. NC2750890004

Air Quality, Air Permit No. 04226R22, Facility ID 05/32/00158

NPDES Stormwater, Permit No. NCS000360

No. 2 Fuel Oil, Certificate of Registration of Oil Terminal Facility
Registration Nos. 320020032 (Building 101), 320020033 (Building 105)

Nuclear Regulatory Commission (Region II)

Radioactive Materials, Broad Scope License 32-12358-01

Durham County, North Carolina

Wastewater, Industrial User Pretreatment Permit (IUP) No. DC-007

DHHS, Centers for Disease Control and Prevention

Laboratory Registration and Select Agent Transfer Program
Registration No. 20021015-965, Certificate of Facility Registration

APPENDIX A

Environmental Policy Statement for the National Institute of Environmental Health Sciences

The NIEHS advances our understanding of the fundamental interrelationship between human health and the environment. It is, therefore, a core value of the Institute to preserve and protect the environment. This will be proactively demonstrated by our continuing commitment to environmental stewardship through pollution prevention, resource conservation, and sustainable development of our facilities and programs.

I. Purpose and Policy.

Purpose: This policy establishes general goals and guiding principles for a commitment to environmental responsibility. Through implementation of this policy, the NIEHS will strive to be a leader in the advancement of environmental stewardship within our programs, facilities, and the community.

Policy: The NIEHS mission is to reduce the burden of environmentally associated disease and dysfunction by defining how environmental exposures affect our health, how individuals differ in their susceptibility to these exposures, and how these susceptibilities change over time. In keeping with this mission and to preserve the rights of future generations, the Institute affirms its commitment to environmental excellence and actively promotes the public's right to a healthy, quality environment. The NIEHS will strive to integrate environmental responsibility in its decision-making at all levels and in the conduct of all Institute programs and practices.

II. General Goals and Guiding Principles

- A. *Compliance with Environmental Requirements.*** The NIEHS is committed to complying with all applicable Federal, state and local environmental laws, statutes and regulations. Where existing laws and regulations are not adequate to ensure protection of public health or the environment, we will establish and meet our own environmental quality standards.
- B. *Environmentally Responsible Planning and Design Principles.*** The NIEHS, in conjunction with appropriate NIH offices, will assess the environmental implications in the development, construction, and operation of campus infrastructure, grounds, and buildings. To the extent practical, planning and designs for the maintenance and development of campus facilities will promote environmental sustainability through the efficient use and conservation of resources, landscaping and grounds maintenance practices that are compatible with the local environment, and modes of transportation that minimize environmental impact.
- C. *Built Environment.*** The NIEHS will seek to integrate the development and operation of campus infrastructure, grounds and buildings with the natural environment in ways that promote and encourage public health, employee wellness, and quality of work-life.
- D. *Pollution Prevention.*** The NIEHS will minimize solid waste generation and the potential release of pollutants into the environment first through source reduction, secondarily through reuse and recycling, and finally through treatment and disposal.
- E. *Hazardous Waste and Toxic Materials.*** The NIEHS will actively strive to minimize the generation of hazardous wastes. The Institute will maintain policies and

processes for the safe and efficient use, tracking, storage, and disposal of hazardous and toxic materials.

- F. *Commitment to Environmental Education and Awareness.* The NIEHS recognizes the value of on-going education and awareness of all employees and on-site contractors concerning the importance of environmental responsibility in all phases of Institute operations. Further, the Institute is committed to provide relevant and accurate information on the Institute's environmental performance to the public.
- G. *Environmentally Responsible Purchasing Decisions.* The NIEHS recognizes that environmental responsibility can be exercised through its purchasing choices. Accordingly, the Institute will strive to obtain the "best value" by balancing short and long-term costs, including consideration of the environmental, life cycle, and maintenance costs in purchasing products and services.
- H. *Efficient Use and Conservation of Energy, Water, and Other Resources.* The NIEHS will strive to reduce resource consumption by eliminating wasteful practices and promoting efficient use, and by evaluating and implementing feasible and practical conservation measures in existing buildings, renovations, and new construction.

III. Implementation and Review

The Office of Management, Health and Safety Branch, in coordination with the NIH Office of Research Facilities shall be responsible for administering and monitoring this policy through implementation of an Environmental Management System. All NIEHS employees and staff are expected to support the Institute's effort to meet the goals of this policy and are encouraged to offer comments and suggestions for improvement. The Health and Safety Branch will coordinate an annual review of this policy statement and develop recommendations for improvements and updates as needed.

September, 2005

David Schwartz, MD
Director, NIEHS

Samuel Wilson, MD
Deputy Director, NIEHS

Anne Sassaman, PhD
Director, DERT, NIEHS

Lutz Birnbaumer, PhD
Director, DIR, NIEHS

Richard Freed, MSB
Associate Director for Management, NIEHS

Allen Dearry, PhD
Director, DRCPT, NIEHS

APPENDIX B

Environmental Aspect Analyses

The “Environmental Significance Score” is a qualitative tool that can be used in the initial assessment of facility processes and activities for possible improvements in environmental performance. Environmental management initiatives can be prioritized, and objectives and targets can be developed based on the relative rank order of processes and activities having the greatest potential “environmental significance”. The use of this algorithm is intended to provide a systematic and consistent approach for ranking across a wide range of facility processes and activities. However, the rating factors are qualitative and involve subjective evaluation. For any specific situation, it is possible that other factors not included in the algorithm may have an important or over-riding role in assigning relative priorities.

Environmental Significance =

Frequency X [(Severity X Scope) + Probability + Legal Risk+ Resource Consumption]

Rating Factors & Definitions

Frequency – The frequency that the organization performs or conducts a process or activity. Frequency refers to the number of times a process or activity is performed; not the number of times an environmental impact may occur associated with that process or activity.

Score	Frequency
10	Continuous
9	Once per shift
8	Once per day
7	Weekly
6	Monthly
5	Quarterly
4	Semi-Annual
3	Annual
2	Once every 1 – 5 years
1	Once every more than 5 years
0	Never

Severity – A qualitative assessment of the degree that an environmental aspect of a process or activity impacts human health or the environment. Severity does not account for the probability or likelihood that a deleterious impact will occur; rather, this factor characterizes the magnitude of the health effect or environmental damage (e.g., serious, long term, irreversible, etc.) should it occur.

Score	Severity
4	Serious – Irreversible, major damage or endangerment of human health; regulatory limits exceeded
3	Significant – Moderate reversible damage or human health impact
2	Minor – Minimal reversible damage or impact; within regulatory limits
1	Negligible – Insignificant impacts; within regulatory limits; no measurable environmental loss
0	Positive impact

Scope – The extent of an impact in terms of its distribution in the environment and potential for migration beyond the site of occurrence. The release of a chemical vapor or fine particulate to the atmosphere or the release of liquids to the sanitary sewer are examples of environmental aspects that will almost always be considered as involving potential offsite impact. Whereas, the scope for a release to the ground (e.g., spill event) would depend on a number of factors specific to the situation (e.g., volume, proximity to waterways and property boundaries, etc.).

Score	Scope
2	Offsite migration will likely occur
1	Impacts are easily confined to the site

Probability – A qualitative assessment of the likelihood that an adverse impact on human health or the environment will occur from an aspect of a process or activity.

Score	Probability
4	Likely
3	Possible
2	Remote
1	Improbable

Legal Risk – The degree to which the environmental aspects of a process or activity are subject to regulatory controls or oversight. Such oversight can be exercised through regulations, permits, or licenses issued by governmental agencies. Noncompliance can result in notices of violations, and other civil or criminal proceedings. Legal risk can also include the potential for environmental impacts to become highly visible and generate public relations concerns through reporting by news media or other focused interest groups.

Score	Legal Risk
4	High
3	Moderate
2	Minor
1	Negligible
0	Positive Impact

Resource Consumption – A qualitative assessment of the consumption of renewable and non-renewable resources (i.e., fuel oil, natural gas, wood, plastic, glass, paper, metals, etc.) in the performance of the activity or process. The assumption is that a

higher consumption of resources, especially non-renewable will result in a greater overall impact to the environment. However, the impact to the environment is lessened by the use of recycled content materials and recycling activities for the waste materials.

Score	Resource Consumption
4	High - High use of non-recycle content, non-renewable resources with no end recycling activities
3	Moderate - Moderate use of non-renewable resources combined with use of renewable resources, recycle content material and recycling activities
2	Minor - Low use of non-renewable resources combined with use of renewable resources, recycle content material and recycling activities
1	Negligible - Low use of non-renewable resources, renewable resources, recycle content material combined with recycling activities
0	Positive Impact - Use of only recycle content material combined with recycling activities; resource consumption is sustainable

**NIEHS Environmental Management System
EMS Processes / Activities**

2005

Significance Scores

Freq x [(Scope x Severity) + Prob. + Leg Risk + Res Con]

Major Function	Sub-Function	Freq.	Scope	Severity	Prob.	Leg Risk	Res Cons	SIG. SCORE
Animal Husbandry	Animal bedding and feed systems	8	2	2	3	2	3	96
	Cage Wash Operations	8	2	2	3	3	3	104
	Veterinary care and animal facility operations	9	1	2	2	3	3	90
	Necropsy	7	1	2	3	2	2	63
	Pest control	6	1	2	2	3	1	48
Biomedical / Laboratory Research	Bench scale use of chemicals, solvents, buffer solutions, radioisotopes, biological materials	9	2	2	2	3	3	108
	Histology	8	2	3	2	3	2	104
	Glassware Services	8	2	2	3	3	3	104
	Scientific Imaging, Film Photography	8	2	2	2	3	1	80
	Scientific Imaging, Other	8	1	2	2	2	3	72
	Media Preparation	8	2	1	2	1	3	64
	DNA Sequencing – Core Facility	8	1	2	1	1	2	48
	Mass spectroscopy	8	1	2	1	1	2	48
	Microarray – Core Facility	8	2	1	1	1	2	48
Building Maintenance	Janitorial / Custodial Services	9	2	2	3	2	2	99
	FEB Shop Activities	8	2	2	3	2	2	88
	Painting; refinishing	6	2	2	3	2	2	66
	Woodwaste Baghouse	6	1	1	2	4	1	48
Building Utility Services								
	High Temperature / Hot Water (Boilers) -- operate, maintain, and repair the boiler plant and HTHW distribution systems	10	2	3	3	4	4	170

Chilled water (Chillers) -- operate, maintain, and repair the chiller plant and chilled water distribution systems	10	2	2	3	3	4	140
Natural Gas - operate, maintain, and repair the buildings' natural gas distribution systems	10	2	3	2	2	1	110
Sanitary sewer systems -- operate, maintain, and repair the buildings' sanitary sewer distribution systems	10	2	2	2	4	1	110
Supply / Exhaust Ventilation	10	2	2	2	2	3	110
Laboratory utilities -- operate, maintain, and repair the buildings' gas distribution systems	10	2	2	2	2	2	100
Fuel Oil Delivery and Storage	6	2	3	3	4	2	90
Storm sewer systems	10	2	2	2	2	1	90
Electrical -- operate, maintain, and repair the buildings' electrical distribution systems	10	1	2	2	2	2	80
Domestic water -- operate, maintain, and repair the buildings' domestic water distribution systems	10	2	1	2	1	1	60
Telecommunications	10	1	1	1	1	2	50

Cafeteria Services

Food preparation	8	2	2	1	2	2	72
Pest control; sanitation	4	1	2	1	2	1	24

Facility Construction / Renovation

ACM management	7	2	4	2	4	3	119
Solid waste disposal	8	2	3	3	3	2	112

Grounds Maintenance

Maintain lawns	8	2	2	3	2	2	88
Pest control	5	2	2	3	3	2	60
Remove snow and ice from paved and unpaved surfaces	5	2	2	3	2	3	60
Maintain lake	5	2	1	3	3	2	50
Provide litter control services	8	1	1	2	1	2	48

	Plant and maintain ornamental and shade trees, shrub, hedge, flower, and ground cover beds	7	1	2	2	1	1	42
	Maintain interior plants	7	1	1	1	1	1	28
Office and Administrative Work								
	Photocopying / Duplication Services	8	1	1	3	1	2	56
Transportation								
	Vehicle Motor Pool	9	2	3	3	3	3	135
Warehousing								
	Transportation (e.g., dangerous goods)	8	2	3	3	3	3	120
	Storage of supplies, dangerous goods, equipment	8	1	2	2	2	2	64
Waste Management								
	Incineration -- Uncontrolled	6	2	3	4	4	4	108
	Incineration -- Controlled	7	2	2	2	4	4	98
	Hazardous waste (Building 108)	8	1	3	3	4	3	104
	Waste transportation	5	2	3	3	4	2	75
	Solid waste recycling and disposal	7	1	2	2	3	0	49

APPENDIX C

Training Programs

Course Title	Positions required to take the training	Typical Timing	Typical Length	General Content / Environ. Topics
<u>Health, Safety & Environmental Training for Institute Staff</u>				
Introduction To Health & Safety at NIEHS	All personnel who may be potentially exposed to hazardous agents or conditions	Offered 3 or 4 times during the year.	One half day	An overview of all environmental programs including EMS, SPCC Waste management Recycling, Waste minimization; Hazard Communication Safe handling procedures for potentially infectious human materials. Waste management
Bloodborne Pathogens (annual refresher)	Any employee that may come in contact with human blood or other potentially infectious materials	Required annually	1 - 2 hours	Safe handling procedures for potentially infectious human materials. Waste management
Laboratory Safety	All laboratory personnel including student appointees, staff fellows, visiting scientists, visiting fellows, and technicians <i>(previous training and experience may exempt employee from training)</i>	Offered 3 times during the year, plus once for summer hires.	Two half days	General lab safety and health; Personal protection; Lab spill response; Chemical toxicity
Radiation Safety for Principal Investigators	Any full time NIH employee that will serve as a Principal User on radioactive material protocol <i>(previous training and experience may exempt employee from training)</i>	Individual user must be nominated by their Scientific Director to be enrolled in the Radiation Safety for Principal User course. A nominee must attend and successfully complete the course before consideration by the Radiation Safety Committee to become a Principal User.	Three full days - offered twice per year	Safe use and handling of radioactive research materials; Proper management and disposal of waste
Introduction to Radiation Safety	Anyone using/working with radioactive materials <i>(previous training and experience may exempt employee from this training)</i>	Prior to work with radioactive materials at NIEHS - offered four times per year, normally January, May, June and September	Three half days (9 hrs total)	Safe use and handling of radioactive research materials; Proper management and disposal of waste
Radiation Safety Refresher Training (PU and Worker)	Biennial update for Principal Users and radiation workers. Plus, required for all new radiation workers credited with previous training and experience at institutes other than NIEHS.	Not to exceed two years between refreshers sessions. Offered in January, May, June and September	1.5 hours	Review of pertinent policies and procedures, e.g., security, waste management
Cs-137 Irradiator Training	Anyone who will use the gamma irradiator. Biennial refresher required	Throughout the year by appointment (1-0325)	45 minutes	Safety and security SOPs

Laser Safety	Anyone who will operate or work in close proximity to a Class 3b or Class 4 laser. Biennial refresher attendance required	Once per year	1.5 hours	Hazard awareness; safe operating procedures
Lockout / Tagout	Federal personnel responsible for servicing and maintaining machines and equipment in which unexpected energizing or start up, or release of stored energy could cause injury	Training required upon initial employment. Retraining provided whenever there is a change in job assignments, machines, equipment or processes that present a new hazard, or when there is a change in control procedures.	2 hours	NIEHS Lockout / Tagout Program; OSHA required training.
Use of Fire Extinguishers	All employees where the employer has provided portable fire extinguishers for employee use in the workplace.	Training required upon initial employment and annually thereafter. Initial training is provided in the H&S "Introduction" and Lab Safety courses. A web-based annual refresher is under development.	~15-30 minutes	Safe and effective use of fire extinguishers; capabilities and limitations of different types of extinguishing agents.
Confined Space	Federal employees whose work assignments may require entering or working in permit-required confined spaces. <i>(Note: Currently most confined space entries are performed by contractor personnel).</i>	Provided to each employee prior to performing assigned duties under this program; and whenever there is a change in permit space operations presenting a new hazard not covered by previous training	~3 hours	NIEHS Confined Space Program; OSHA required training.
Powered Industrial Trucks (Forklift Driving Certification)	Personnel who operate powered industrial trucks (e.g. forklifts, etc.)	Certification required every 3 years. Refresher training is provided as needed.	~3 hours	OSHA required training
<u>HSB Staff Training</u>				
NIEHS/EPA RCRA Contingency Plan	Employees and contractors who work in hazardous waste operations or are employed in positions in which knowledge of Contingency Plan procedures is relevant.	Required annually	~2 hours	Hazardous waste management; hazardous material handling; spill prevention; emergency response; SPCC Plan; EPA required training
OSHA HAZWOPER Refresher	Members of Hazmat emergency response team (operations level)	Required annually	8 hours	HAZMAT Emergency Response training including personal protective equipment, chemical hazards, monitoring instruments, spill response scenarios and cleanup materials and methods; OSHA required training
Respiratory Protection/ SCBAs	HSB and other employees who have been assigned respirators	Required Annually	1 hour	NIEHS Respiratory Protection Program; OSHA required training

Asbestos Operations and Maintenance	HSB and ORF staff involved in general maintenance and asbestos material removal/repair tasks	Required Annually	6 hours	Safe handling and proper disposal of ACM; work practices and procedures; personal protective equipment
Asbestos Supervisor	HSB and ORF staff involved in supervision of Asbestos Abatement Projects	Required Annually	8 hours	Project planning; hazard recognition; safe handling and proper disposal of ACM; work practices and procedures; personal protective equipment
CPR for the Professional Rescuer/AED/Oxygen Administration	HSB and other staff participating as members of the NIEHS Med. First Response Team	Required Annually	12 hours	Knowledge and skills to provide first responder care for breathing and cardiac emergencies
Emergency Response	HSB and other staff participating as members of the NIEHS Med. First Response Team	Required every 3 years	52 hours	Knowledge and skills to provide first responder emergency care for injuries and sudden illness
Professional Certification Maintenance - Certified Industrial Hygienist	HSB staff holding the CIH credential	5 year re-certification cycle	40 points over 5 yrs	Continuing education and professional competency
Professional Certification Maintenance - Certified Health Physicist	HSB staff holding the CHP credential	4 year re-certification cycle	64 credits over 4 yrs	Continuing education and professional competency
Professional Certification Maintenance - Certified Hazardous Material Manager	HSB staff holding the CHMM credential	5 year re-certification cycle	17 points over 5 yrs	Continuing education and professional competency

APPENDIX D

Environmental Management Programs

And

Environmental Management Initiatives